

Special Issue

Applications Based on Symmetry/Asymmetry in Control Engineering

Message from the Guest Editor

Symmetry considerations can play a role in the design, development, modeling, and control of robots, particularly in the context of automatic control. System Modeling: By identifying symmetries in the mechanical structure or motion patterns of the robot, engineers can reduce the complexity of the mathematical models used for control design. This simplification can lead to more efficient analysis and control algorithms. Control Algorithm Design: If the robot's structure or task exhibits symmetries, control strategies can be developed to exploit these symmetries. This can involve designing controllers that take advantage of symmetric properties to improve coordination, synchronization, or the performance of the robot's movements. Stability and Performance Analysis: By understanding the symmetries present in the system dynamics and control algorithms, engineers can analyze the stability properties and design control strategies that preserve or exploit these symmetries. Symmetry-based stability analysis can provide insights into the robustness and performance of the control system. Task Execution:...

Guest Editor

Prof. Dr. Ricardo López-Gutiérrez

Consejo Nacional de Humanidades, Ciencias y Tecnologías, Mexico City, Mexico

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Symmetry
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
symmetry@mdpi.com

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About the Journal

Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

Editor-in-Chief

Prof. Dr. Sergei Odintsov

1. ICREA, 08010 Barcelona, Spain

2. Institute of Space Sciences (IEEC-CSIC), C. Can Magrans s/n, 08193 Barcelona, Spain

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